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We all recognize the importance of the science of chemistry to the geologist, the botanist, the physicist or mineralogist, as well as to the physician and the student in home economics. It is only by the study of chemistry alongside of these other sciences that the students have gone into the world with a fully rounded knowledge of their special subjects.

What has chemistry wrought in the last fifty years? It has assisted in transforming a treeless plain into a garden of luxurious abundance. It has been the handmaid of the farmer, of the miner, of the dairyman, of the horticulturist and the manufacturer in developing the latent resources of the state of Kansas.

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### **The Early History of Medicine.**

J. M. McWHARF.

In the brief time allotted a paper of this character, I can but touch some of the high points. Medicine is one of the most noble of all arts, but through ignorance on the part of many who enter this field it is to-day far behind all other arts. Physicians are many in title, but few in reality. A student of medicine must bring love to the task of labor and perseverance, so that instructions received may take root and bring forth proper and abundant fruits. He must have a true knowledge of medicine, that he may become an esteemed physician in name and reality.

The evolution of medicine from its primitive stage to the present moment presents many fascinating and ludicrous sides.

It would be a pleasure to enter in detail upon the subject matter, but time prevents such consideration. Medicine has been divided into three periods or ages. First, the mythological; second, the dogmatical or empirical; third, the rational. The mythological age began with the human race, coming on down through the centuries to 400 years B C. This was followed by the dogmatical or empirical age, which continued to the close of the eighteenth century A. D., with the death of the Brunonian system.

Here the rational system of medicine enters the field, and Hippocrates has the credit of being the father of this system. To-day we look upon the teaching of Hippocrates as rational empiricism. Long before the birth of philosophy there appeared an order of priest-physicians, cultured by the Asclepiadea, who traced their origin to a mythical personage known as Esculapius. They created temples of health in which they placed their patients, who on entering the temple must undergo purification, bathing or friction, followed by fomentation with odoriferous herbs. Then came a period of total abstinence of food, followed by permission to eat the flesh of animals that were brought to the temple for sacrifice. Religious ceremonies with music were used. In fact, anything and everything to play upon imagination. The asclepia or hospital was as a rule located near a spring, the water of which possessed medicinal properties. Primeval man was powerless with this medical armament to battle against the ravages of an epidemic like the black death of the fourteenth century, which claimed in China alone thirteen million. The human race for centuries have struggled against influences that were an-

tagonistic to their well being. During these years the healing art was primitive and crude, and for centuries it struggled along under a depressed and deplorable condition. Medical divinities were worshipped by the Greeks and Egyptians, and this system was in vogue as late as Alexander the Great. There were thirty-six of these human gods, each controlling a separate or distinct part of the body. Esculapius was the Greek God of Medicine. He used songs, dances and incantations in the treatment of diseases. One of his principal remedies for internal treatment contained wine, meal and cheese. In the sixth century we find Pithagoras, a pious fraud, with Empericlees and Anaxagoras as followers.

Their knowledge of drugs was crude, vague and indefinite, and their practice of medicine was replete with superstition. Five hundred years before the Christian era, quack nostrums were sold in the cities of Greece. In this sunset splendor of the nineteenth century, with all our boasted intelligence, they are a strong factor with the people. This superstition of the ages clings to our skirts, and through the ages past it has been a strong factor against the advancement of medical science. Anatomy, chemistry and physiology were in fact unborn when Hippocrates entered the field of medicine. There was a force, termed by him Nature, and upon this he relied. His pathology was humoral. Many terms used by him are still retained, as acute, chronic, epidemic, sporadic, benign and malignant.

The dogmatical school of Hippocrates was confronted by a rival known as the empirical. They were strongly antagonistic, and contested for the supremacy. During this contention the field was entered by another sect, known as the methodical. Asclepiades was the founder. He possessed little knowledge of the fundamentals of medicine. Soon followed the pneumatic and eclectic. Galen, A.D. 130, entered the field as an eclectic, but soon became prominent as a dogmatical figure. As a result of his efforts this school came to the forefront for sixteen centuries. He looked upon medicine as an art that taught how to preserve health and cure disease.

He treated fevers inhumanly and barbarously; windows closed, extra covers used, and hot drinks; nothing of a cooling nature permitted.

With Galen's death the dogmatical system of medicine began to decline.

In the early part of the Christian era a strong belief was prevalent that a supernatural power had been transmitted to the elders of the church, whereby disease was cured through the intervention of Providence. This idea of ignorance and superstition predominated down to 1315 A.D. Exalted virtues were also ascribed to medicines that were prepared during the conjunction of Venus and Jupiter. From 415 B.C. down to 1800 A.D., the iron hand of ignorance and superstition held sway. At that time the rational age of medicine came into the field, and step by step, slowly but surely, she has advanced to the honorable and exalted position that she now occupies. Prior to the eighteenth century all animal, vegetable and mineral substances had been used in the treatment of diseases. In the animal kingdom were the flesh of lizards,

crocodiles, vipers, brains of wolves, heads of mice, bodies of moles, liver, lungs, blood and organs of generation of animals, etc.

The excrement of animals was used internally and externally. Poultrices of mashed spiders were used, and the heart of the hare worn upon the back of the neck for the cure of malarial fevers. Newly born puppies were cooked and eaten to make the individual immune from colic. Such treatment, doubtless, is disgusting to the more fastidious of our day, but were as effective in the cure of diseases as are many of the plasters and pads in use at the present time. "Thoriac," a compound comprised of 150 ingredients, was held in high esteem, and it was retained in the British Pharmacopœia until a little over 125 years ago.

To-day, as in the past, it is difficult to rid the field of medicine of remedies that possess no merit whatever. What are the conditions found in the medical profession at the present time? Rationalism predominates, and, as a rule, medicine is prescribed from a scientific standpoint. The better class of physicians are at work along a line termed the expectant treatment, relying very largely upon nature to accomplish the end desired.

I am looking forward to a time when the expectant treatment will be coupled with laws governed by sanitary science. The physician will then prescribe rules of living and thus prevent diseases, instead of medicine to cure the ills that flesh is heir to. Sanitary laws will become more and more a governing factor in our lives.

A correct system of living is the end to be desired. In the prevention and treatment of diseases our science culminates and becomes an art. If unable to accomplish these ends the world would be as well without as with our aid.

We should be able to ward off or cure disease. Our mission is to cure the curable and comfort the incurable. It is impossible for me at this time to enter into detail, yet it is obvious to an observer that therapeutics has undergone very great and important changes during the last half century. For many diseases the mode of treatment to-day is the opposite of that in use but a few years ago. An explanation of this change is to be found in the idea that previously theory was the ground work of therapeutics. Now, fact is the basis of treatment. In other words, once disease was treated by its name; at the present time known conditions govern its treatment. Local changes were the guide in the past; now, the general condition of the patient is held in high esteem as a therapeutical informant. When pathology was in its infancy, medical practice was an empirical art, and it had all its evils. With the growth of pathology, therapeutics, still an art, is becoming a science, having a better knowledge of the limits of its powers, hence is content to attempt less heroic measures, being convinced that it does less harm. More real good is accomplished with medicine than ever before in its history.

As a rule we have no set theory, but act upon the nature of diseases from a general standpoint. Our knowledge of the laws that govern morbid changes is better than it was during the past history of medicine.

The treatment used is based upon a true appreciation of the general

pathological conditions, regardless of theories, whether they come to us with names hoary with age and ludicrous from their novelty. Day by day the veil of ignorance, superstition and intolerance is being lifted, and the time is near at hand when independent thought and correct reasoning must and will bear sway. Then the practice of medicine will stand upon merit and her own worth. She demands this and nothing more.

Ottawa.

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## The Early History of Pharmaceutical and Medical Chemistry.

L. E. SAYRE.

If any one is inclined to boast of his ancestry, we are told he will be relieved of his self-esteem if he goes back a few generations, when he is sure to find a jail-bird or some sort of a criminal. Pharmacy and medicine alike, by such a process, will be obliged to be somewhat modest, at least if they look up their past history. One need not go back farther than the sixteenth century—the period of medical mysticism, the iatrochemical period—to discover one of our forefathers, Paracelsus by current name. His real name, however, was Phillipus Aureolus Paracelsus Theophrastus Bombastus von Hohenheim. He was certainly a “bird” if not a jail-bird. One writer says of him: “He lived like a pig, looked like a drover, found his greatest enjoyment in the company of the most dissolute and lowest rabble, and throughout his glorious life was generally drunk.” It is true that his life offered a strong contrast to his mentality, but he was a man of noble character and intentions, an ambulatory theosophist, who hoped to inspire mankind with a love of conscientiousness and veracity and to restore the suffering to health. He, bad as he was, liberated chemistry from the yoke of alchemy and joined it with medicine. He was an iatro-chemist, which, being translated from the Greek, signifies physician-chemist. He accomplished this during a period of ecclesiastical and national reformation, when Luther and Calvin were combating against superstition, and the changes he wrought, through his originality of thought and teaching, and freedom and vigor of expression, well entitle him to the appellation some have seen fit to give him, the “Luther of Medicine.” So desirous was he of penetrating into the mysteries of nature, however, that he neglected books and took prolonged journeys through most of the known countries of the world (probably distances of about that from Kansas City to Chicago, or less). He sought to glean every scrap of knowledge obtainable from literary and learned men, mechanics, metallurgical workers, occults, and every one with whom he came in contact. He returned to Switzerland about 1525, and was recommended to the chair of physic at Basel. His self-confidence appears at this institution by publicly burning the works of Avicenna and Galen. He at once began his fight against the old medical school. He was forced to leave Basel in 1527, after a quarrel with the municipal council, and withdrew into Alsace, whither his fame in medicine followed him.